THE McEDWARDS GROUP
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June 30, 2005
Job No. 1058.01.02

Ms. Bonnie Rolandelli, Associate Engineering Geologist
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Work Plan
Additional Groundwater Investigation
44851 North Highway 101
Laytonville, California

Dear Ms. Rolandelli:

On behalf of Mr. Albert W. Repovsch, Jr., we are pleased to present this work plan for additional investigation of the extent of groundwater contamination southwest of MW-12. This work plan was requested in your letter of June 2, 2005 to Mr. Repovsch.

ADDITIONAL INVESTIGATION OF THE EXTENT OF GROUNDWATER CONTAMINATION

We will assess the extent of groundwater contamination southwest of MW-1 by installing five additional monitoring wells at the locations shown on Plate 1. The well borings will be drilled and soil sampled above groundwater at five foot intervals in accordance with the attached Standard Field Procedure. All soil samples will be analyzed for TPH as gasoline, TPH as Diesel, BTEX, and the five fuel oxygenates and lead scavengers EDB and 1,2,-DCA. The wells will be constructed of 2-inch PVC, be 20 feet deep, have well screen placed between 5 and 20 feet, and a cement grout seal placed below the well cover to 3 feet. The monitoring wells will be constructed, developed, and sampled in accordance with the attached Standard Field Procedure. A Well Construction Diagram is attached as Plate 2. These wells will be incorporated into the ongoing monitoring program and sampled for TPH as gasoline, TPH as Diesel, BTEX, the five fuel oxygenates, and lead scavengers EDB and 1,2,-DCA during the September 2005 sampling round..

SUMMARY REPORT

After completion of the September 2005 sampling, we will prepare a report of the installation of the five new wells that will include a description of field activities, a site map showing the locations of the monitoring wells; descriptions of soil and groundwater conditions encountered; logs of the well borings; construction diagrams of the monitoring wells; tabulations of soil sample analysis results; conclusions regarding the extent of contamination; and recommendations for site remediation and/or additional investigation.

We trust this is the information you require at this time. If you have any questions, please call.

Very Truly Yours,
THE McEDWARDS GROUP

Donald G. McEdwards, Ph.D., RCE 28088, RG 3872, HG 153
Principal Hydrogeologist

Attachments: Proposed Monitoring Wells, Plate 1
Well Construction Diagram, Plate 2
Standard Field Procedure for Taking Soil Samples for Classification and Analysis and for Taking Grab Ground-Water Samples
Standard Field Procedure for Monitoring Well Construction, Development, and Sampling

cc: Mr. Albert W. Repovsch, Jr.
P.O. Box 930
Laytonville, CA 95454

C:\1058\Additional Monitoring Wells Work Plan

Proposed Monitoring Wells
44851 Highway 101
Laytonville, California

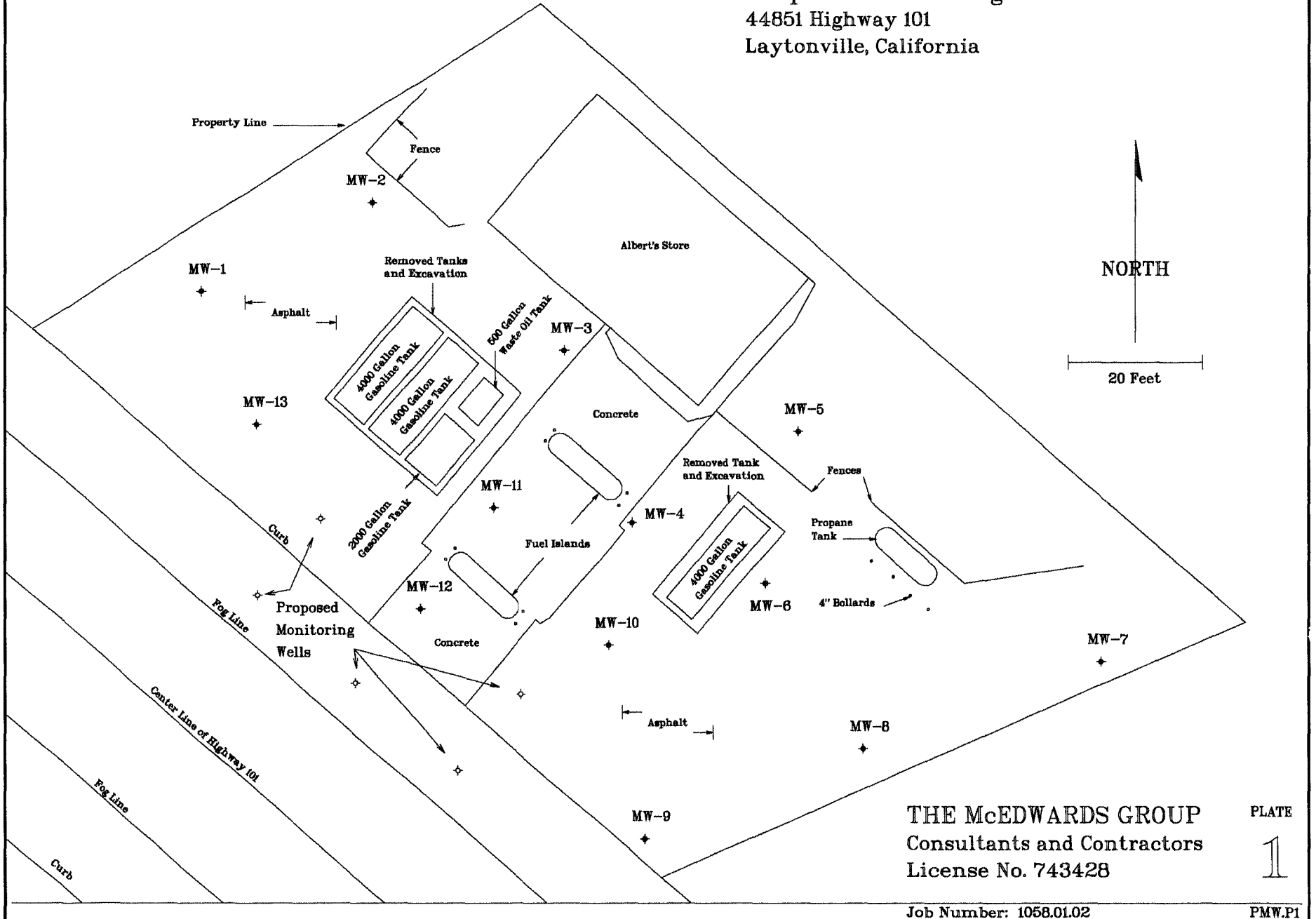

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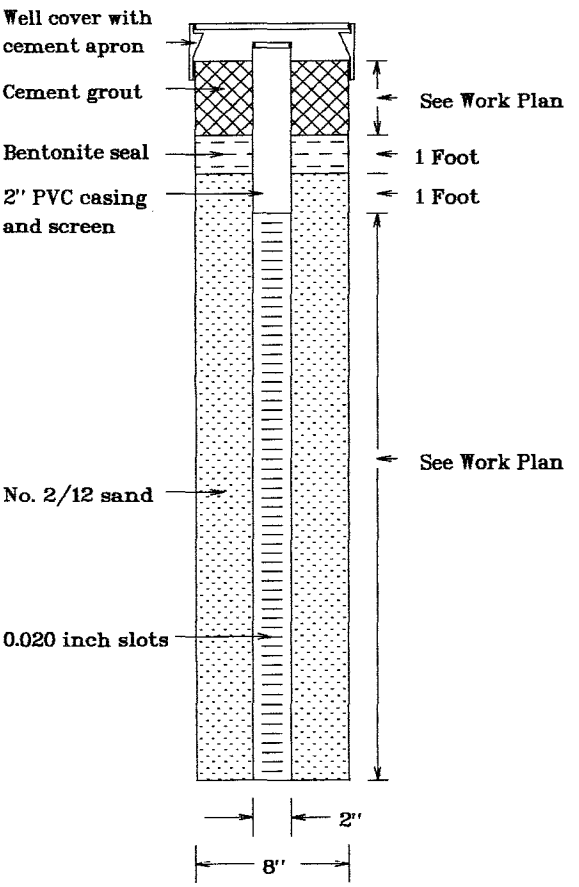
PLATE
1

Job Number: 1058.01.02

PMW.P1

WELL CONSTRUCTION DIAGRAM



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Well Construction Diagram
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Laytonville, California

PLATE
2

Job Number: 1058.01.01 | Approved: | Date: | 01–01.P2

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STANDARD FIELD PROCEDURE
for
TAKING SOIL SAMPLES FOR CLASSIFICATION AND ANALYSIS AND FOR TAKING GRAB GROUNDWATER SAMPLES

Where access permits, soil borings will be drilled using a truck-mounted drill rig equipped with solid or hollow stem augers and operated by a licensed C-57 well driller. Subsurface conditions revealed by drilling rig behavior, drill cuttings, sample drive resistance, and soil samples will be logged under the supervision of a State-registered Geologist or Civil Engineer. Soil samples will be collected at maximum depth intervals of five feet, at apparent changes in soil type or lithology, in material with hydrocarbon staining or odors, and if possible, just above the ground-water level. Where access is restricted or soil conditions permit, soil borings will be advanced using a hand auger and soil samples will be taken using a hand sampler.

Soil samples will be collected for soil classification and laboratory analysis using a split spoon sampler lined with 2-inch diameter by 6-inch long brass tubes. Samples will be screened for hydrocarbon contamination by odor, the presence of liquid hydrocarbon, and/or the characteristic blue-green discoloration of soil.

Soils will be described in accordance with the Unified Soil Classification System (USCS). The following information will be recorded on a field boring log:

1) Soil color, including mottling or staining.
2) Predominant USCS soil type symbol modified by adjectives describing other soil types found within the predominant soil type.
3) Qualitative estimate of relative strength of silts or clays (soft, firm, or hard) or qualitative estimate of relative density of sands or gravels (loose, medium dense, or dense).
4) Water content described as moist - damp with water, wet -very moist with no free water, or saturated - completely full of water.
5) Presence of contaminant odor, indicated by the strength of the odor and contaminant type. Strength of odor is subjectively evaluated as weak, moderate, or strong. Type of contaminant is described with reference to commonly known odors of gasoline, diesel fuel, motor oil, sewage, etc.
6) Depth of ground-water level and time when first encountered and depth of ground-water level at subsequent times, if measured.
7) Any other information about soil conditions that would assist in differentiating among soil types, geologic units, or extent and type of contamination.

Augers and sampling equipment will be steam-cleaned prior to use in each boring. Sampling equipment will be washed with trisodium phosphate and rinsed with clean water after each use. Soil cuttings and sample residue will be stored onsite either in a stockpile constructed on and covered by 10 mil plastic sheeting, or contained in 55 gallon hazardous waste drums, pending disposal. Wash and rinse water will be stored onsite in 55 gallon hazardous waste drums or poly tanks, pending disposal.

Grab ground-water samples will taken with a bailer from first-encountered ground water standing in an open borehole, in the stem of the hollow stem auger, or in a Hydropunch(TM) well screen driven beyond the depth of the auger. Water from the bailer will be decanted into an acid-preserved VOA, in such a manner as preclude any head space or entrained air bubbles.

Soil samples to be analyzed for semi-volatile analytes (e.g. TPH as Diesel or Motor Oil, PNA, etc.) will be sealed inside the sample tube by placing non-reactive, air tight, plastic caps on the ends of tube. A sample label that will include the job number, job name, sample number, date, time, and sampler's initials will be affixed to the sample tube. The tube will be placed in a polyethylene bag and transported under chain of custody in a cooled ice-chest to a State-certified laboratory.

Soil samples to analyzed for volatile analytes (e.g. TPH as Gasoline, BTEX, purgeable halocarbons/aromatics, VOCs by 8260,8240, Oxygenates by 8260, etc., will be taken according to EPA 5035. This method was developed by regulatory agencies to minimize the loss of volatiles between the times of sample collection and sample analysis. This type of sample collection can be performed on surface samples and on intact soil cores captured in 2-inch diameter by 6-inch long brass sample tubes described above. The soil must be soft enough to be cored with a plastic syringe to collect 5 and 10 gram cores.

The VOA style of 5035 sample collection is used because of its economy and longer holding time compared to the alternative Encore style of 5035 sample collection. The term VOA refers to the 40 ml glass sample vial with a teflon septum cap used for collecting water samples for volatile organics analysis.

For analysis of one EPA volatile method at a sample location, three syringe cores will be collected, two 5 grams samples for "low level" and one 10 gram sample for "high level" contamination. A second core is required for low level contamination because each low level core is analyzed in its entirely and it results can only be confirmed, if necessary, using a duplicate sample. For this reason, a dedicated syringe core is required for each EPA volatile analysis requested. No additional syringe cores are required for the high level contamination analysis because the high level core samples are solvent-extracted and yield a large number of aliquots for duplicate or additional analysis.

Sample containers and field equipment used in the VOA style of sampling includes preserved VOAs (Hydrochloric Acid for all low level samples, Ploye thylene Glycol for high level samples to be analyzed by 8260, and Methanol for high level samples for analysis other than 8260), a field balance capable of 0.01 grams resolution, disposable syringes having one open end for coring, a syringe driver with stop/handle driver, a waste bag for used syringes, packing material for the VOAs, and a cooler for shipping.

McCampbell Analytical will prepare the required number and type of preserved VOAs, determine the tare weight each VOA (including cap and preservative) to the nearest 0.01 gram, label each VOA with its tare weight and type of preservative, and prepare a VOA inventory sheet documenting the tare weights and preservatives.

For each low level sample core, a nominal 5 grams (about 3 ml) of soil is taken with the syringe handle using the graduated depth stops on the handle. The syringe is removed from the handle and the soil core is extruded into an acid-preserved VOA without splashing any acid from the VOA. The VOA is capped, weighed to the nearest 0.01 grams, and the weight recorded in the VOA inventory sheet. After the information requested on the sample label is written, the label is affixed to the VOA, the VOA is weighed to the nearest 0.01 gram, the weight of the labeled VOA is recorded on the VOA inventory sheet and on the sample label. Each volatile analysis method requires a dedicated low level syringe core at each sample location. Also, one duplicate low level syringe core is required for each sample location.

For each high level sample core, a nominal 10 grams (about 6 ml in volume) of soil is taken with the syringe handle using the graduated stops on the handle. The syringe is removed from the handle and the soil cor is extruded into a solvent (Polyethylene Glycol for 8260, Methanol for all other analysis) preserved VOA without splashing any solvent from the VOA. The VOA is capped, weighed to the nearest 0.01 grams, and the weight recorded in the VOA inventory sheet. After the information requested on the sample label is written, the label is affixed to the VOA, the VOA is weighed to the nearest 0.01 gram, and the weight of the labeled VOA is recorded on the VOA inventory sheet and on the sample label. Only one high level syringe core is required at each sampling location, regardless of the number of volatile analysis methods requested. The holding time for the preserved VOAs is 14 days.

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STANDARD FIELD PROCEDURE
for
CONVENTIONAL MONITORING WELL CONSTRUCTION, DEVELOPMENT, AND SAMPLING

Construction

Monitoring wells will be constructed of 2- or 4-inch diameter schedule 40 PVC blank casing and well screen to a depth of 10 to 15 feet below the groundwater level. Well screen will have 0.020 inch factory milled slots. The top of well screen and will be positioned to encompass the estimated seasonal fluctuations in the groundwater level.

The annulus space around the well screen and blank casing will be filled with #2-12 sand from the bottom of the well to one foot above the top of the well screen. A one-foot thick seal of hydrated bentonite pellets will be placed on top of the sand pack. The remainder of the annulus filled with a cement/bentonite mixture not exceeding 5% bentonite dry weight. The top of the well casing will be positioned at about 6 inches below ground surface and will be fitted with a water-proof, locking cap. The well cap will be protected by a circular well vault installed flush with the ground surface. A well identification number will be stamped into the vault lid and a placard indicating the well number, depth, and screened interval will be placed on the underside of the vault lid. The top of the well casing will be surveyed to 0.01 feet MSL and 0.1 feet in plan by a licensed Land Surveyor.

Development and Sampling

Well development will begin at least 24 hours after well construction. The well will be developed by repeated use of a surge block followed by bailing or pumping the well until the produced water becomes relatively clear. The water will be allowed to stabilize in the well for a minimum of 24 hours prior to checking for the presence of free product or measuring the depth to ground water. The depth to ground water or the top of any free product layer will be measured using a graduated tape or an electronic interface probe. The presence and thickness of free product will be checked using an electronic interface probe, disclosing paste, or a flap check valve bailer. If no free product is found, the well will be pumped or bailed until three to five well volumes have been removed, the well dewaters, or successive measurements of the indicator parameters pH, temperature, and electrical conductivity have stabilized. A bulk groundwater sample will then be taken from the well using a clean bailer. Water sample bottles will be filled from the bailer. No head space will be allowed to form in the sample bottles. Sample bottles will be labeled with the job number, job address, sample number, date, time, sampler's initials, and preservative used, if any. Sample bottles will be transported under chain of custody in a cooled ice chest to a State-certified laboratory.

Development, purge, and rinse water will be stored onsite, pending disposal.